

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. – 10. (Canceled)

11. (New) A measuring arrangement for measuring an electrical signal on a membrane body, comprising:

- a) an electrical measuring instrument;
- b) electrodes;
- c) a membrane comprising at least one connexin or innexin; and
- d) a membrane body comprising at least one connexin or innexin;

wherein the connexins and/or innexins in the membrane and membrane body cooperate to form at least one gap junction channel, and an electrically conducting access is produced from a side of the membrane facing away from the membrane body to an interior of the membrane body by said at least one gap junction.

12. (New) The measuring arrangement according to claim 11, wherein the membrane is configured as a supported bilayer.

13. (New) The measuring arrangement according to claim 11, wherein the membrane covers an end of a capillary.

14. (New) The measuring arrangement according to claim 11, wherein the membrane is in the form of a living cell.

15. (New) A method for measuring an electrical signal on a biological membrane body, comprising:

- a) providing a measuring arrangement according to claim 11; and
- b) measuring an electrical signal on the membrane body.

16. (New) The method according to claim 15, wherein the electrical signal is at least one of:

- a) the membrane potential of the membrane body;
- b) the electrical current flowing through the membrane; and/or
- c) the electrical capacitance of the membrane.

17. (New) A method for identifying an active agent that affects a property of a receptor and/or ion channel, comprising:

- a) providing a measuring arrangement according to claim 11, wherein the membrane body comprises a receptor and/or ion channel;
- b) bringing the membrane body into contact with at least one test substance;
- c) measuring at least one electrical signal on the membrane body; and
- d) determining whether the at least one electrical signal has been affected by the presence of the at least one test substance, wherein an effect on the electrical signal by the test substance is taken as an indication that the test substance is an active substance.

18. (New) A method for transporting a substance into or out of a membrane body, comprising:

- a) establishing at least one gap junction channel in the membrane body; and
- b) driving a substance into or out of the membrane body by establishing a concentration gradient, an electrical voltage difference or a pressure difference across the at least one gap junction channel.

19. (New) A method for detecting the presence of a substance in a system, comprising:

- a) providing a membrane arrangement according to claim 11;
- b) measuring at least one electrical signal on the membrane body; and
- c) determining whether the electrical signal has been affected from a standard, wherein an effect on the electrical signal is taken as an indication that a substance is present.

20. (New) A method for growing living cells, comprising culturing the cells on a substrate comprising at least one connexin-doped membrane.